



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/995,925	11/28/2001	Mark Gagner	2001P22392US	1140
7590	04/04/2006		EXAMINER	
Siemens Corporation Intellectual Property Department 186 Wood Avenue South Iselin, NJ 08830			CHOW, CHIH CHING	
			ART UNIT	PAPER NUMBER
			2192	

DATE MAILED: 04/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/995,925	GAGNER, MARK	
	Examiner Chih-Ching Chow	Art Unit 2192	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 13 January 2006.
- 2a) This action is FINAL.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-20 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 28 November 2001 is/are: a) accepted or b) objected to by the Examiner. Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 5/12/05.
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date 03/28/06.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_

## **DETAILED ACTION**

1. This action is responsive to amendment dated January 13, 2006.
2. Per Applicants' request, claim 20 have been amended. A proposed amendment facsimiled on 3/17/2006 is also considered.
3. Claims 1-20 remain pending.

### **Response to Amendment**

4. Applicants' amendment dated 01/13/06, responding to the 10/28/2005 Office action provided in the objection of claim 20. The examiner is withdrawing the objection of claim 20.

### **Response to Argument**

5. Applicants' arguments and the proposed amendments (see attached facsimile copy) have been fully considered respectfully by the examiner but they are not persuasive. Another prior art still reads on the claimed invention even the amended claims were entered. The Examiner is addressing the proposed amendment in the following section.

### **Claim Rejections - 35 USC § 102**

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-18 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 4,916,642 by Frederick Kaiser et al. (hereinafter "Kaiser"). The listed claims are based on the proposed amendments facsimiled on 3/17/06 (see attached facsimiled copy).

**CLAIM**

1. A controller for use in an heating ventilation and air conditioning (HVAC) system for executing a block program to control at least one device in a network said system comprising:

- a. a block table listing a plurality of records corresponding to a plurality of blocks in the block program provided in said controller;
- b. a block library provided in said controller for holding a plurality of algorithms for executing functions associated with said blocks;
- c. a block execution engine for executing said blocks in said block program in accordance with said associated algorithms; and
- d. wherein said block execution engine selectively executes said blocks in the block program only when said block execution engine determines a new input value exists is present which is different from a previous input value to control said at least one device in said network system.

**Kaiser**

Kaiser teaches a controller system for an HVAC system, see Kaiser's Fig. 1 and Fig. 2, and description on column 5, lines 6-9, "FIG. 2 is a pictorial diagram of a greenhouse zone with a plurality of peripheral control elements **for heating and cooling the structure (heating, ventilation and air conditioning (HVAC) system)** which are controlled by the environmental control system". Also see Kaiser's Abstract, "The system includes a plurality of sensor elements and actuator elements (*at least one device*), which communicate with a central control (*a controller*) through communication interface units." For item a, see FIG. 4, "Table of Remote Elements" (*a block table listing a plurality of records corresponding to a plurality of blocks in the block program*); for item b, see FIG. 5 and description on column 5, lines 16-18, "FIG. 5 is a tabular representation of a **generalized control law (algorithm for executing functions)** which is executed by the system control to regulate the environment of a greenhouse"; for item c, the **central control unit** of FIG. 1 is the 'block execution engine', see FIGs. 7 and 14, and description on column 5, lines 47-49, "FIG. 14 is a detailed system flowchart of the **software executed by the personal computer of the system control unit** illustrated in FIG. 7"; for item d, see column 11, lines 48-60, "The actual control program is provided by using the operator input means to **define a temperature set point and a number of temperature stages or ranges away from that set point**. ... If the actual temperature happens to fall within a range then

peripheral control elements assigned to that range are to be operated at the state stored for that stage. ... Thus, after selecting stage boundaries, he selects equipment to be assigned to each stage. When the equipment is selected an operational state for each device in a stage is accomplished. (*new input value exists which is different from a previous input value*)” – in Kaiser’s disclosure, the checking is done via the comparison of the new input value and the previous input value.

2. The apparatus controller as defined in claim 1 further including an execution image file for storing descriptions of said blocks and connections between said blocks.

For the feature of claim 1 see claim 1 rejection. For the rest of claim 2 feature see Kaiser’s column 11, lines 20-26, “All of the **peripheral control elements** of the greenhouse environmental control zone shown in FIG. 2 communicate over the existing AC power lines shown schematically as **connections 18**. It is evident that other devices could additionally be included in this control and that more than just one or two of each device could be used”; the execution image file for storing descriptions feature see claim 1, a and b, the execution image file for storing descriptions are in the central control unit and the Zone controllers, also see the description on column 2, lines 27-34, “Logical control of greenhouse environmental conditions has heretofore utilized, for example, 24 volt control systems with relays and solenoids individually **wired together** and strung out, or a computer based equivalent system (such as a **programmable controller**) with dedicated wires for communication and **control lines strung out and wired among all control points and sensors.**” (*connections between said blocks*).

3. The apparatus controller as defined in claim 1 further including means for inputting/outputting data to and from said block execution engine.

See claim 1 rejection, Kaiser's input is via an operator, output is the operation performed by the system controller, also see column 7, lines 33-39, "the **control unit 20** (*block execution engine*) of the **environmental control system** in accordance with **stored program instructions** and **user input data** performs the functions of system configuration, peripheral element control, task sequencing, communication linkage and protocol, system diagnostics, user interface, storage, and archiving of the system data."

4. The apparatus controller as defined in claim 1 wherein each of said records in said block table includes a field indicating whether a corresponding one of said blocks is to be executed by said block execution engine.

For the feature of claim 1 see claim 1 rejection. For the rest of claim 4 feature see FIG. 4, each of the records corresponds to a field indicating a device that is going to execute the block of program.

5. The apparatus controller as defined in claim 4 wherein each of said records in said block table further includes,  
a field for indicating the type of function performed by said corresponding one of said blocks, and  
a field for identifying said corresponding one of said blocks.

For the feature of claim 4 see claim rejection. For the rest of claim 5 feature see Kaiser's FIG. 13, a specific file name is identified for a corresponding block.

6. The apparatus controller as defined in claim 5 wherein each of said records in said block table further includes,  
at least one field for identifying at least one output connector connected to said corresponding one of said blocks,  
at least one field for identifying at least one input connector connected to said corresponding one of said blocks,  
at least one field for storing an input value

For the feature of claim 5 see claim 5 rejection. For the rest of claim 6 feature, see Kaiser's FIG. 14, at least one field for one output/input connector connected to a corresponding block. The storage of output values are described in Kaiser's column 11, lines 42-62.

of said corresponding one of said blocks,  
and

an output value field for storing an output  
value of said corresponding one of said  
blocks.

7. The apparatus controller as defined in  
claim 1 further including a connector table  
listing a plurality of records of a plurality  
of connectors for operatively connecting  
said blocks.

8. The apparatus controller as defined in  
claim 7 wherein each of said records in said  
connector table includes a field identifying  
one of said blocks to which a  
corresponding connector is connected at a  
first end, and at least one field for  
identifying at least one of said blocks to  
which said corresponding connector is  
connected at a first end, and at least one  
second end.

9. A computer-implemented method for  
executing a block program for controlling  
at least one device in a network an heating,  
ventilation and air conditioning (HVAC)  
system using a controller, comprising the  
steps of:

- a. creating a block table of plurality of  
block records in the controller that  
correspond to a plurality of blocks used in  
the block program;
- b. creating a library in the controller for  
holding a plurality of algorithms for  
executing functions associated with said  
blocks;
- c. selectively setting a flag in said block  
records directly in response to when at least  
one input value of corresponding said  
blocks changes; and

For the feature of claim 1 see claim 1  
rejection. For the rest of claim 7 feature  
see FIG. 5, the table defines the  
connections between different stages of the  
blocks.

For the feature of claim 7 see claim 7  
rejection. For the rest of claim 8 feature  
see figure 3A-C, and claim 1 rejection.

Kaiser's invention is a computer-  
implemented method, for the rest of claim  
9 feature see claim 1 rejection.

d. executing said algorithms of said blocks in said block program having corresponding block records that have said flag set to control said least one device in said network system.

10. The method as defined in claim 9 further including the step of creating a connector table of records that correspond to connectors for operatively connecting said blocks.

11. The method as defined in claim 10 further including the step of subsequently setting a flag in said records corresponding to said blocks that are connected to at least one output of said blocks that have been executed, if a value of said at least one output of said executed blocks has changed.

12. The method as defined in claim 11 wherein said step of subsequently setting said flag includes the steps of obtaining an identification of a connector corresponding to said at least one output of said executed blocks from said block records corresponding to said executed blocks, and obtaining an identification of blocks that are connected to said connector.

13. The method as defined in claim 10, wherein said block table and said connector tables are created from an execution image file storing said records for said blocks and said connectors.

14. The method as defined in claim 9 wherein said executing step is performed at every predetermined time interval.

For the feature of claim 9 see claim 9 rejection. For the rest of the claim 10 feature see claim 1 and 2 rejections.

For the feature of claim 10 see claim 10 rejection. For the rest of the claim 11 feature see claims 1d, 4, and 9 rejections.

For the feature of claim 11 see claim 11 rejection. For the rest of the claim 12 feature see claim 4, 9, and 11 rejections.

For the feature of claim 10 see claim 10 rejection. For the rest of claim 13 feature see claim 2 rejection.

For the feature of claim 9 see claim 9 rejection. For the rest of claim 14 feature see Kaiser's column 20, lines 7-10, "Further the routine clears the timer for the power control program to enable the

15. The method as defined in claim 9 wherein said records in said block table are listed in an order corresponding to a predetermined order in which said blocks are adapted to be executed in said block program.

checking on the status of the personal computer software and loads a **four-minute time-out default value for that program.**"

For the feature of claim 9 see claim 9 rejection. For the rest of claim 15 feature see claim 4 rejection.

16. The method as defined in claim 15 wherein said executing step includes a step of checking each record in said block table in said listed order for said block records having said flag set.

Same as claim 15 rejection.

17. A controller for use in an heating, ventilation and air conditioning (HVAC) system having a block program for controlling at least one device in said system a control network, comprising:

- a. a block table, provided in said controller, listing a plurality of records corresponding to a plurality of function blocks in the block program, said blocks each having at least one input for receiving an input value and at least one output for outputting an output value;
- b. a connector table listing records of connectors for operatively connecting said blocks;
- c. a block library for holding algorithms associated with said blocks; and,
- d. a block execution engine for executing said blocks in said block program in accordance with said associated algorithms;
- e. wherein said block execution engine selectively executes said blocks in the block program only when said block

See claim 1 rejection.

execution engine determines a new input value is present which is different from a previous input value, wherein at least one device in said system a-control network is controlled in response to said block execution engine selectively executing a block.

18. The controller as defined in claim 17 further including means for inputting data to said block execution engine from the devices and the system control network, and outputting data to the devices and the system control network from said block execution engine.

For the feature of claim 17 see claim 17 rejection. For the rest of the claim 18 feature see claim 1 rejection.

### Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

**Barrett**, US Patent No. 5,311,451, discloses a method for a highly distributed direct digital process control system for use in controlling a fully distributed process includes at least one device controller independently monitoring and controlling a plurality of external devices for performing a complete process.

**Smith et al.** US Patent No. 6,192,282, discloses a method for A relatively small set of interprocess control commands define an interprocess control protocol which is utilized in relatively high level scripts and control applications. The improved building automation system operates to translate control instructions in one particular control protocol to control instructions in a second control protocol.

9. The following summarizes the status of the claims:

35 USC § 102 rejection: Claims 1-20

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Ching Chow whose telephone number is 571-272-3693. The examiner can normally be reached on 7:30am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam can be reached on 571-272-3695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Any inquiry of a general nature of relating to the status of this application should be directed to the **TC2100 Group receptionist: 571-272-2100**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chih-Ching Chow

Examiner

Art Unit 2192

March 28, 2006

CC



ANTONY NGUYEN-BA  
PRIMARY EXAMINER